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Monthly Extension Update Newsletter

Forestry, Wildlife, and Fisheries

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Department of Forestry, Wildlife and Fisheries

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FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

NOVEMBER 2013

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Walnut Tree Quarantine in Morgan and Rhea Counties Due to Thousand Cankers Disease

TN Department of Agriculture - Nashville

The Tennessee Department of Agriculture announced the discovery of a walnut tree killing disease, Thousand Cankers Disease (TCD), in Morgan and Rhea Counties. Walnut Twig Beetles, which transmit the disease causing fungus and the disease itself, have been found in both counties. The counties are now under quarantine. Citizens in these counties cannot move walnut tree products and hardwood firewood outside the quarantined counties.

Bledsoe, Cumberland, Fentress, Hamilton, and Meigs Counties are now considered buffer regulated counties because they are adjacent to a quarantined county. Polk and Sequatchie Counties are being placed in the buffer regulated category because of the finding of Walnut Twig Beetles in those counties. Bradley County is also being placed in the buffer regulated category because it is surrounded on the Tennessee side by other buffer regulated counties. Citizens in buffer counties can move walnut tree products and hardwood firewood within buffer counties, but not outside. Product can also be moved into a quarantine county, but not taken back out.

continued.....

“We will continue to survey for the Walnut Twig Beetle and Thousand Cankers Disease to help slow the spread of the disease,” said TDA Plant Certification Administrator Gray Haun. “We are working with stakeholders to help educate citizens on the symptoms of TCD and how they can help.”

TCD is a progressive disease that may kill a tree within two to three years after initial symptoms are detected. The disease-causing fungus, *Geosmithia morbida*, is transmitted by the Walnut Twig Beetle, *Pityophthorus juglandis*. Branches and trunk tissue are killed by multiple infections of the fungus as the beetles carry the fungus from one area to the next.

TDA plant inspectors and foresters will continue to conduct a thorough survey of trees in these areas to assess the extent of the infestation and to see if more areas need to be quarantined. Counties already under quarantine for TCD include Anderson, Blount, Jefferson, Knox, Loudon, Sevier and Union. Adjacent counties to the quarantined areas are also restricted for movement of walnut products and hardwood firewood.

The Tennessee Department of Agriculture Division of Forestry estimates that 1.38 million black walnut trees in Tennessee’s urban areas are potentially at risk from TCD. The risk represents an estimated value loss of \$1.37 billion. There are an estimated 26 million black walnut trees on Tennessee public and private timberland potentially valued as high as \$1.47 billion.

TDA officials urge area residents and visitors to help prevent the spread of TCD:

- **Don’t transport firewood, even within Tennessee.** Don’t bring firewood along for camping trips. Buy the wood you need from a local source. Don’t bring wood home with you.
- **Don’t buy or move firewood from outside the state.** If someone comes to your door selling firewood, ask them about the source, and don’t buy wood from outside the state.
- **Watch for signs of infestation in your black walnut trees.** If you suspect your black walnut tree could be infested with TCD, visit <http://www.tn.gov/agriculture/regulatory/tcd.shtml> for an online symptoms checklist and report form or call TDA’s Regulatory Services Division at 1-800-628-2631.

More information about Thousand Cankers Disease and forest health threats in Tennessee can be found at www.ProtectTNForests.org. For more information about other programs and services of the Tennessee Department of Agriculture visit www.tn.gov/agriculture.

Eligible Forestland Producers Encouraged to Apply for Assistance by December 20, 2013

USDA/NRCS TN - Nashville

For agricultural land and non-industrial private forestland producers interested in applying for farm bill conservation program financial assistance in Fiscal Year 2014, the USDA Natural Resources Conservation Service (NRCS) in Tennessee has set Friday, December 20, 2013, as the signup cutoff date for first evaluation funding consideration. Pending the availability of funds, additional evaluation periods may occur and cutoff dates will be posted on the Tennessee website at <http://www.tn.nrcs.usda.gov/programs/>. The application deadline applies to the Environmental Quality Incentives Program (EQIP) and EQIP National Initiatives and the Wildlife Habitat Incentives Program (WHIP) and WHIP National Initiatives.

“When landowners take part in conservation cost share programs, the funds filter through the community, and the initial investment rolls over several times, benefitting the whole area,” said Kevin Brown, Tennessee NRCS State Conservationist. The funds from both EQIP and WHIP help farmers improve the natural resources on private working lands in Tennessee. Conservation practices help the environment while also making the land more productive by addressing issues like water quantity, water and air quality, wildlife habitat, and soil health.

Eligible producers with a conservation plan for their operation receive priority for financial assistance. NRCS staff is available to help producers create conservation plans. Only projects that are “ready to implement” will be ranked for funding. Applications can be submitted anytime throughout the year.

NRCS's conservation programs address resource concerns such as soil erosion, soil health, irrigation efficiency, impaired water quality and fragmented wildlife habitat. EQIP, one of NRCS's largest conservation programs, helps eligible producers plan and implement conservation practices that provide opportunities to improve soil, water, plant, animal, energy, air and related resources on agricultural land and non-industrial private forestland.

For additional information, eligible producers are encouraged to contact their local NRCS Service Center. Service center locations and more information on the programs can be found at www.tn.nrcs.usda.gov.

NRCS has provided leadership in a partnership effort to help America's private land owners and managers conserve their soil, water and other natural resources since 1935.

For program information, contact John Rissler at (615) 277-2576.

Learn more about WHIP and EQIP and other NRCS programs.

[<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs>]

What's a Log Worth?

Adam Taylor, Associate Professor, Forest Products

In Tennessee, when loggers cut timber they often sell the wood on a log basis to their sawmill customers. Even when timber is sold by the weight of the total load, each log is often measured at the sawmill to help determine the subsequent processing efficiency. So, it may be interesting for landowners who are thinking about selling timber to know how a log's value is determined.

There are many products made from the hardwood logs cut from Tennessee's forests; however, the pricing system for logs that has evolved over the years is based on the potential value of the hardwood lumber. Thus, there are four main components to determining a log's value:



1. **Species.** Some lumber species are in high demand because of their superior woodworking properties or appearance. The potential supply of various lumber species depends on how commonly those trees grow in the forest. Because of the balance of supply and demand, some wood species generally are more valuable (e.g. walnut and cherry), while others are usually of low value (gum, sycamore). The most common species in Tennessee are oaks and yellow poplar, which are of medium value.
2. **Scale.** The *amount* of useful lumber that can be cut from a log is estimated by using a log scale, a mathematical formula that uses the diameter and length to predict the number of board feet of lumber that will be produced. A board foot is a lumber volume measurement equal to 12" long x 12" wide x 1" thick. The most commonly used scale in Tennessee is the Doyle rule, which is

$$\text{Board feet} = (D - 4)^2 \times L / 16$$

where the D is scaling diameter – the diameter in inches at the small end, inside the bark, and L is the log length in feet

For example a 16' long log that is 16" in diameter at the small end would be (Doyle) scaled at 144 board feet. Scaling deductions may be applied to logs with sweep (not straight) or defects such as rot that will reduce the lumber yield.

3. **Grade.** The *quality* of lumber that can be cut from a log is predicted by its grade. All logs will produce some low quality lumber but the logs that will yield a greater proportion of high quality boards are usually free of visible knots, rot, sweep or other defects *AND* are relatively large. Thus, the length and diameter of the log are considered in both the grading and scaling processes. Sawmills and other log buyers make their own specific rules for log grading but the principles of grading highly only large logs that are straight and free of visible knots are widely applied.
4. **Market.** As with any product, a hardwood log is ultimately worth what someone is willing to pay for it. The market for logs is constantly changing and can be affected by variation in log supply due to weather and fluctuations in demand for certain grades and species of lumber and for other products. Finally, not all sawmills produce the normal hardwood lumber mix that the log grading and scaling traditions were developed for; some mills produce items (e.g. barrel staves or railroad ties) that require logs with specific characteristics.

Most sawmills have price sheets that list the prices paid for logs of various species and grades. The price sheet represents the ‘market’ at that mill, and the prices are usually listed in dollars per thousand board feet (\$/mbf). So, for example, if a sawmill is paying \$600/mbf for “#1 white oak”, then a 16’ long, 16” diameter log would be worth:

$\$600/1000\text{bf} \times 144\text{ bf in the log} = \86.50 , *if it were white oak and met the requirements for a #1 log, as defined by the mill.* Note that this would be the delivered price. Logging and transportation costs could represent one-third to one-half of the log’s delivered value.

In summary, the value of a log depends on a number of characteristics. Big, defect free logs of a preferred species are generally more highly valued in the hardwood log marketplace. However, the answer to the initial question – “What’s a log worth?” – is best answered by

“It depends...”



Hardwood Analysis and Trends (HAT – November 2013)

David Mercker, Extension Specialist, Forestry

Recession? What recession? Judging from recent price reporting, hardwood timber prices have fully recovered from the 2008/09 recession. And in good form too. An encouraging point is that the strong prices are resulting from not just the lack of supply (of both logs and lumber), but from an increase in demand too. Supply-only driven price increases are normally soon met, causing an equal and succeeding leveling or drop in prices. However, when demand is a driver, recoveries often endure longer.

U.S. housing starts have been on the rise, and are projected to continue increasing for at least the next two years. Exports, particularly to China, have been firm too. China accounts for about 41 percent of all U.S. hardwood lumber exports. This is especially true for red oak, ash, and cherry, whereby these species reach over 55 percent of exports each.

With the exception of black walnut and cherry, lumber is up across all species (that are tracked by **HAT**) since before the recession. The following table summarizes the value change of #1 common 4/4 lumber from a nearly six-year period that begins in January 2008 lasting through present (November 2013). These findings are both impressive and encouraging.

Table 1. Percent Change in Value of #1 Common 4/4 Lumber (2008 to Present)

Species	Percent Price Change
Black Cherry	-39
Sugar (Hard) Maple	13
Red Oak	14
White Oak	13
Poplar	44
Black Walnut	-18
Ash	29
Hickory	15
Soft Maple	30

When adjusted for inflation, sugar maple, and red and white oak have likely kept pace, poplar has far exceeded, and cherry and walnut have fallen short. Still, this is much more favorable than the rapid and seemingly unstoppable price drops that were occurring throughout much of 2008 and 09. All species, including cherry and walnut, have increased in value during 2013. And that is a comment that **HAT** has never made before!

Summarized with permission of the Hardwood Market Report, Memphis, Tn.

“Assisted Migration” of Trees in Response to Climate Change

David Mercker, Extension Specialist, Forestry

The debate over climate change continues. This article is not meant to select a side to the debate, but to address the concept of assisted migration in the event that atmospheric temperatures do rise in the future.

In response to warming temperatures, many plant species are likely to migrate northerly. Some forest scientists are concerned that the rate of plant migration will not keep pace with the rate of warming. The predicted required plant migration rate needed to sustain healthy forests is approximately 2.5 miles per year. Observed rates of plant migration are approximately 0.3 miles per year, or 12 percent of the required rate.

The mismatch could be problematic, potentially leading to low frequency (if not extirpation) of some plant species. This concern is giving rise to the concept of *assisted migration*. By this, assisted migration means facilitating the range expansion of species by artificially establishing them ahead of the direction of spread, all in response to climate change. Movement can be slight - still within the natural range of the species, or significant - to ranges far outside the natural range (particularly if extinction is a concern).

Within Tennessee, predictions on the effect of climate change on forest composition vary according to eco-regions. For instance, in the Mississippi Alluvial Valley Region, the oak-hickory forest type is predicted to increase in abundance while the elm-ash-cottonwood forest type will decrease. In the Southern Blue Ridge Region, the maple-beech-birch and the red spruce-Fraser fir forest type could disappear, with a very significant increase in oak-pine forest type.

This is not intended to be a cause for alarm, but to inform the UT County Agents of the concept of assisted migration. Future tree planting programs and planting designs could take assisted migration into consideration. Those natural resource professionals assisting and providing advice to landowners on land management decisions should also be aware of the concept.

References and for additional information, see:

Williams, M.I., and R. Kasten Dumroese. 2013. Preparing for Climate change: Forestry and Assisted Migration. *Journal of Forestry*. Vol. 111, No. 4.
Paugh, H. et. al. 2010. Tennessee Forest Resource Assessment and Strategy. Tennessee Department of Agriculture, Forestry Division.

Tree-of-Heaven: An Aggressive and Pesky Exotic, Invasive Tree

Wayne Clatterbuck, Professor, Silviculture and Forest Management

Tree-of-heaven (*Ailanthus altissima*) is probably the most invasive, non-native tree species in Tennessee. The species is native to China and was introduced to Europe then the United States in the late 1700s. The tree spreads by prolific seed production and abundant root sprouts. Most any land or soil disturbance invites tree-of-heaven. The species commonly invades urban areas, roadsides, trails, harvested openings, forest edges, fence rows, and rights-of-ways. Groups of tree-of-heaven trees expand their area forming dense circular to oval thickets at the expense of other vegetation, especially along the interstate roadways and medians, providing an ever-present source of seed.

The ability to reproduce both by seeds and by sprouts allows tree-of-heaven to spread and quickly dominate disturbed areas. Root sprouts can emerge 30 to 50 feet from the nearest existing stem. Tree-of-heaven sprouts can grow 8 to 10 feet in height during the first year, often outgrowing and displacing native species. Seedlings can grow 3 to 6 feet per year. Viable seeds are produced by 2- to 3-year plants. The species should be controlled as soon as it is found.

Mowing, burning, cutting trees or pulling seedlings are ineffective control measures because of the profuse stump and root sprouting capacity of tree-of-heaven. The root system must be killed before the plant is controlled. The most effective control measure is to use herbicides applied to foliage, stems or cut surfaces that translocate to the roots and eventually kill the root and the plant. The procedure and chemical used depends on the stage of the plant. Several herbicides are effective in controlling tree-of-heaven.

For **large trees**, make stem injections (hack and squirt) and apply glyphosate, trichlopyr or imazapyr in dilutions to cut spacings specified on the herbicide label (midsummer best, late winter before leaf out somewhat less effective). For felled trees, apply these herbicides to the stump surface immediately after cutting taking care not to drip herbicide on the ground. Avoid cut surface applications when the sap is rising prior to leaf out.

For **saplings** (less than 4 inches in diameter), apply trichlopyr in a commercially available basal oil, vegetable oil, or crop oil with a penetrant (refer to herbicide label and check with herbicide distributor) to young bark near base of stem as a basal spray. Application should be in late summer to early spring before leaf out.

For **seedlings** and easy to reach **saplings**, thoroughly wet all leaves with one of the following herbicides in water with a surfactant (July to late September): glyphosate, trichlopyr, or imazapyr. Follow herbicide label for foliage applications.



Remember to follow the label-specified herbicide amounts that are permissible to control the target species, i.e., tree-of-heaven. Other herbicides can be used for tree-of-heaven control. The herbicides mentioned in this article are those that have widespread and traditional use.

Well-established tree-of-heaven usually requires follow-up surveillance and further treatment of root sprouts and plant germinants that originate from the soil seed bank. Herbicide treatments often only reduce the root system making follow-up applications necessary. Small portions of the original root system that survive after treatment can regrow quickly. Total control of tree-of-heaven necessitates repeated applications, patience, and diligence.



Thicket of tree-of-heaven spreading by root sprouts and seed along a roadway.

Some Firewood Burns Hotter Than Others

Wayne Clatterbuck, Professor, Silviculture and Forest Management

At today's fuel prices, burning wood remains a wise and viable option for supplementing heat energy and reducing home-heating bills. Unlike coal, oil, and gas which are nonrenewable fossil fuels that contribute to greenhouse emissions, wood is carbon neutral, renewable, a sustainable resource, and a local energy source.

Different tree species have wood that varies in their heat value. British Thermal Units (BTUs), the amount of heat required to raise temperature of a pound of water one degree Fahrenheit, is used commonly to compare heat values. Wood per unit weight generally produces the same BTU, no matter the species. However, that weight will be of different volumes among species because each species is of a different wood density. For example, twice the volume of a low density wood such as basswood or yellow-poplar (tuliptree) has the same heat production of a high density wood such as oak or hickory. The approximate BTU content by tree species is listed below

Available Heat per Cord* of Wood (BTUs)	Species
> 22 million	Black Locust, White Oaks, Hickory, Beech, Osage Orange, Hophornbeam, Dogwood, Persimmon, Honeylocust
19 to 22 million	Red Oaks, White & Green Ash, Sugar Maple, Black Walnut, Apple
16 to 19 million	Red Maple, Elms/Hackberry, Cherry, Birch, Sycamore, Yellow Pines, Sourwood, Sweetgum
11 to 16 million	Yellow-Poplar, Cottonwood, Basswood, White Pine, Hemlock, Willow, Buckeye, Catalpa, Eastern Redcedar

*1 standard cord = 128 cubic feet of wood and air; 80 cubic feet of solid wood at 20% moisture content. One pound of wood contains approximately 5800 BTU. Efficiency of burning unit = 50 to 60%

Chestnut oak is one of my favorite woods to burn in the fireplace. Chestnut oak is in the white oak family and thus has similar high BTU content and densities as white oak and hickory. The tree grows on average to poor productivity sites, thus diameter of stems and crown wood is often less than 8 inches, such that logs do not need to be split. However, larger logs of chestnut oak split easily compared to the tight grain of white oak and hickory which tends to be stringier making splitting more difficult.

The heat equivalents of burning wood compare favorably to other energy sources.

- Anthracite coal contains 28 million BTU per ton, but available heat is only 22 million BTU per ton (75% burning efficiency). One pound of coal contains 11,000 available BTU, roughly 2 times the amount of energy compared to wood.
- One gallon of No. 2 fuel oil contains 140,000 BTU, but is burned at 70% efficiency, providing 98,000 available BTU.
- 100 cubic feet of natural gas = 1 therm = 100,000 BTU, but is burned at 80% efficiency, providing 80,000 available BTU

Compared to other energy sources, wood is a cost-effective, abundant and environmentally sound energy source for home heating and for supplementing other energy sources. Wood is still the number one energy source for heating and cooking worldwide because of its availability. Though fossil fuels may have more BTU, the increased costs and environmental consequences make burning wood more favorable.

Consider Establishing a Timber Basis

Larry Tankersley, Extension Specialist, Forestry

If you have recently purchased land with standing timber, you should consider establishing a basis on the trees for tax purposes. Establishing a basis is very important if you consider the trees for the wood products market. Basis is important in reducing your tax burden on timber sale proceeds and it is important for determining casualty losses due to humans and nature. Many folks who declare no intention to ever sell timber when they purchase the land often find with time that trees will be damaged and die. At this time, they may recognize a “loss”, but without a basis, the IRS will not be able to acknowledge this loss.

When you obtain timberland, you are obtaining two real estate assets, the land and the trees (often even buildings and other improvements). Of course, you paid a single dollar amount, the sales price, which likely did not itemize the amount you were paying for individual assets such as the trees. This, however, needs to be done as soon as possible after you obtain title to the land and trees. The IRS definition of basis is **the market value the day it becomes yours**.

Establishing your timber basis requires you to determine the portion of the sales price that reflects the market value of the timber on the day it becomes yours. This requires three steps:

- determining the market of the individual assets,
- calculating the percentages of each asset to the total,
- multiply the percentage of market value by the acquisition cost.

Consider the following example for establishing your land and timber accounts (the actual numbers will be unique to each taxpayer.)

In 2012, you bought a 100-acre tract of timberland. The price was \$58,000. You also paid \$800 for a survey, \$450 for a title search and closing costs and \$1,200 for a timber cruise (inventory). Your total acquisition cost was \$60,350.

The cruise identified 1,000 cords of pine pulpwood on 90 acres valued at \$26 per cord. There were also 10 acres of pre-merchantable trees, which contributed \$200 per acre to the value of the property. The Market Value (MV) of the land itself was \$275 per acre. The sum of the separate MVs was \$55,500.

Construction of the following table is a good method for allocating the acquisition cost into the various accounts.

Account	Market Value (MV)	Proportion Of MV	Original Basis
Land	\$27,500	0.4955	\$29,903
Young growth	\$ 2,000	0.0360	\$ 2,173
Merchantable Timber	\$26,000	0.4685	\$28,274
Total	\$55,000	1.0000	\$60,350

Your first question is, where do the Market Values come from? This is where the assistance of a forester is helpful in determining the MV for the young growth account and the merchantable timber accounts. Values for the land can be obtained from a registered appraiser or another knowledgeable source. Note, however, that no account is allowed to be zero, regardless of whether the market values are greater (or less) than the ultimate allocation among assets. The IRS will allow you to report any number you wish, but it must be defensible in the event of an audit. You are encouraged to maintain detailed records as to how numbers are obtained and calculated. Also note that appraisal and other professional fees should be included in your acquisition cost.

Managing Native Grass Forages – How Much Warm-Season Grass Do I Need?

Patrick Keyser, Professor and Director, Center for Native Grasslands Management

In considering planting native warm-season forages on your farm, one of the most basic questions is, “how much do I need?” Certainly having good quality summer forage is important in any beef operation and natives can play that role well – drought tolerant, low input, and good yields of excellent forage. But how many acres should you plant? There are really two answers to that question.

First, is the short-term answer. If you have never planted native grasses, it would be best to start relatively small, maybe 3 – 5 acres. Select an area that is already in need of renovation, or perhaps an odd area that has been out of production for a while. Starting at a modest scale and (perhaps) on marginal land reduces risk by having a minimal area out of production and limits exposure in case drought or other issues impact establishment success. Once you have established this smaller area, you can gain some experience in managing these grasses and from there, decide how much more you would like to plant. You will also have some experience in establishment and some of the associated challenges.

In the long-term, having 25 – 50% summer forages is a good goal. This figure is based on two things. First, because native warm-season grasses (NWSG) produce so much more tonnage per acre (about 4 vs. about 2.5 for cool-season grasses), and require fewer inputs, they can produce hay more cheaply and on fewer acres. They also have the advantage of being harvested later in the summer when haymaking weather is better and other farm chores may not be as pressing. Thus, there is good justification for having all of your hay ground in NWSG.

What about pasture? A good way to look at that is to recognize that we have, optimistically, ten months of grazing, four of which are not typically good for producing cool-season forages. Based on simple math then, four of ten grazing months, or 40% of pastures could be reasonably put into summer forages. Past research conducted in northern Virginia suggested a target of 30% summer forages. Recommendations farther south (Arkansas, for example) put the figure at or above 50%. Clearly, how far south you are plays a role in determining the appropriate ratio between cool- and warm-season forages.

Regardless of what target you shoot for, it will be prudent to work towards that goal in modest increments. So if you think you may want, say 50 acres of NWSG on a farm with 120 acres of grass, it may be best to convert 5 acres initially, and the rest over 3 – 5 years in 10 or 15-acre increments. As mentioned above, this will spread out risk and allow you to make adjustments as you go. It will also help on cash flow in terms of establishment expenses.

Regardless of your ultimate goal, consider using NWSG the next time you renovate a pasture or hayfield. This will give you a good opportunity to evaluate how they fit into your forage program.

Wildlife Management Calendar for December

Craig Harper, Professor, Wildlife Management

Wildlife Notes

Black bears and chipmunks begin hibernating
 Gray and fox squirrels are breeding
 River otters begin breeding
 Mink, muskrat, and bobcat fur are prime
 Northern mourning doves migrating into TN
 Migrating woodcock numbers peak
 Waterfowl numbers often peak in December, according to the weather
 Owls and hawks increase vocalization and are establishing territories just prior to mating season
 Christmas Bird Count conducted in late December

Habitat Management

Do **not** mow old-fields if you have any interest in wildlife

- mowing at this time destroys much needed winter cover
- mowing accumulates thatch, limits mobility, and suppresses the seedbank
- wait until late March/early April and burn and/or disk the field
- if you just can't burn or disk, at least wait until early April (just prior to nesting seasons) before mowing
- burning or disking are preferable strategies for setting back succession and maintaining early successional cover
- refer to Chapter 6 in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information on managing early successional habitat

Portions of old-fields may be burned or disked in December, but it is best if you wait until late winter/early spring if possible

- setting back succession later in the season (March) will allow winter cover to stand through the season
- burning / disking now, however, may be necessary if considerable acreage needs disturbance, but may be difficult pending wet weather
- **do not burn / disk all available cover in one year—leave at least two-thirds so that you manage approximately one-third available cover each year**
- ideally, disturbance, whether burning or disking, should be completed in a block pattern rather than strips

Disk firebreaks around fields and woods (if it's not too wet) before the ground freezes

- disking now will stimulate forbs next spring and will enable you to burn when conditions are favorable

It is not too early to conduct dormant-season burning in woods (hardwoods and pines) to reduce fuel loads and enhance conditions for wildlife; when the weather is right, get it done; this is especially important if you have a considerable amount of acreage to burn; if you wait until March/early April, you may not get it all done, depending on weather

- obtain burning permit from Tennessee Division of Forestry
- make sure firebreaks are in place
- only burn when duff layer (below leaf litter) is moist (not usually a problem in December)
- remove any relatively large woody debris from around the base of desirable trees to avoid damaging the tree
- primarily use a backing fire with relatively low flame lengths (6 – 12 inches)
- refer to *A Guide for Prescribed Fire in Southern Forests* for additional information on using prescribed fire

Enhance the cover around old-fields by thinning (killing) undesirable trees 100 feet into the woods (edge feathering)

- girdle unwanted trees and spray wound with a mixture of Garlon and Arsenal AC
- use a 20% solution of Arsenal (imazapyr) or a 50% solution of Garlon 3-A (triclopyr) with water
- dead standing trees (snags) provide perching, roosting, denning, and feeding sites for many wildlife species
- increased groundcover is stimulated by the additional sunlight, improving forage and nesting cover for many wildlife species

Native warm-season grasses can be planted during the dormant season

- don't plant too deep – no more than ¼ inch!
- don't forget preemergence weed control next April
- refer to *Chapter 5* of *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information

Continue to strip-mow or silage-chop dove fields to provide seed and hunting opportunities

- don't cut it all – leave some for January/February
- migrating doves appreciate your efforts and late dove seasons can offer great shooting

Spray perennial forage food plots for weed control if necessary

- refer to *A Guide to Successful Food Plots: Blending Science with Common Sense*, PB 1769, for specific information

Fertilize winter forage plots containing oats, wheat, and/or cereal rye

- 30 pounds of N per acre
- P and K according to soil test

Soil test now for spring plots

- applications of lime require about 6 months before full effect on pH is realized

Plant trees/shrubs for wildlife

- plant trees/shrubs in blocks at end of fields and in “odd” areas
- apple, pear, crabapple, wild plum, sumac, persimmon, and elderberry are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for a list of additional trees and shrubs to consider

Establish hedgerows across fields with soft-mast-bearing trees and shrubs

- hedgerows can be used to break-up fields into sections
- hedgerows should be at least 50 feet wide—a single row of planted shrubs/trees with at least 25 feet of fallow growth of blackberry, forbs, etc. on either side
- **spray tall fescue and other undesirable grasses before planting!**

Fertilize/prune trees/shrubs for increased soft mast production

- this is for trees/shrubs out in the open, not those in woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, refer to TSI activities

Continue Timber Stand Improvement activities

- stimulate growth among oaks, beech, cherry, persimmon, blackgum, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with appropriate herbicide
- use a 20% solution of Arsenal (imazapyr) or a 50% solution of Garlon 3-A (triclopyr) with water

Spray Chinese privet and Japanese honeysuckle

- spraying the green foliage of these species now prevents harming desirable species that are dormant
- 5% solution of Garlon 3-A or 1% solution of glyphosate herbicide and water works well for honeysuckle
- 3% solution of glyphosate herbicide works well for privet

Build brushpiles from thinned trees and pruned limbs

- put large limbs on bottom and small limbs on top for crevice space and overhead protection
- this is best done and the effect greatest along the edges of and within good early successional cover (native forbs and grasses with scattered brambles and shrubs)

Erect boxes for wood ducks and bluebirds

- 1 box per 100 yards of shoreline is adequate for wood ducks
- clean out old wood duck boxes and replenish fresh wood shavings (about 4 – 6 inches)
- screech owls and squirrels may use the boxes through winter
- repair/install predator shields if necessary
- bluebird boxes should be no closer than 80 yards apart
- up to 9 or more bluebirds may roost in a single box on cold nights

Put out bird feeders and keep them full

- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

Flood waterfowl impoundments

- a depth of 8 – 12 inches is ideal for dabbling ducks

Duck numbers should be rising – watch the weather!

Wildlife Damage/Population Management

Close crawl spaces under the house and check for openings in the attic

- helps keep snakes, skunks, and squirrels from getting into places where they are not welcome
- rodents are caching food for the rest of winter; take action now to keep them out of your house
- glue boards are very effective in trapping mice, snakes, and lizards looking for a warm place inside your basement or garage

Blackbirds and starlings have gathered into large winter flocks

- don't allow them to roost in your trees; if they start, they'll form a habit
- repel them with noise makers (shotguns, firecrackers, banging metal pans together)
- be persistent

Vultures may be problematic around structures and livestock holding areas

- scare tactics using firearms and pyrotechnics are effective—persistence is necessary
- it is against the law to shoot a vulture without a permit
- contact USDA-Wildlife Services for severe problems and information on obtaining a permit

Refer to *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 for additional information on wildlife damage management.

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